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# MONTANA OUTDOORS

# Our Point of View

E. NEALE STREEKS

*Sustainability*. Can you live without it?

As an individual *you* may indeed be able to live without it. As a community, a society, and a species we cannot.

So what does it mean?

Sustainable practices need three pieces—biological possibility, economic feasibility, and social acceptance.

Wild trout management is an example of a sustainable practice. If the habitat is conserved and the fish are healthy, it is biologically possible. Because it costs less than hatchery stocking, it is economically feasible. Note that it has not always been socially acceptable, as Tom Palmer's article beginning on page 2 points out.

Folks were not convinced, after Montana's rivers and streams had been stocked for 75 years, that wild fish were capable of sustaining a fishery. Scientific studies supported the need for change, and the Montana Fish and Game Commission's courage in making the change proved them true.

Something that is sustainable can also be vulnerable. Whirling disease and illegal introduction of fish, for example, threaten the core of our wild fisheries. These "bioinvasions" alter what is biologically possible in a system. Whether these actions come about purposefully or carelessly makes little difference.

Montana law requires that fish be tested for disease prior to stocking in private ponds. The bad news is that not all fish ponds are legally stocked. Nor is educating 99 out of 100 people about the consequences of illegally introducing *their* favorite fish species in *everyone's* river enough. Whether through ignorance or arrogance, it may only take a single fish or single person to ruin a fishery forever.

It is unfortunate that as individuals we can live without what we as a community and society cannot. In the months ahead, I will use this column to explore the different dimensions of sustainability. Please let me know what it means to you.

Pat

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TOM J. ULRICH

*Visitors to Montana's high country are likely to hear the high-pitched alarm calls of a pika (page 8).*

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STEVE DAHMER

by Tom Palmer

# River of Perpetual Hope

PERHAPS IT SHOULD COME as no surprise that there was a time when the Madison River wasn't the Madison River we now know. And it wasn't so long ago. Madison River trout were wild *and* native then. For two decades beyond the turn of the twentieth century it seemed as if that's how Montanans thought it would always remain.

And then we just forgot what we thought we wanted for the Madison River. We once owned an understanding of nature and the wild that said it was good to keep a native home for at least some of our native trout—an idea we're beginning to mine again—but that earlier and innocent wisdom somehow slipped from our memory as naturally as a perfect dream drifts from wakeful consciousness.

In the early days of the new century and through at least 1920, there existed in the minds of people who paid attention to such things a noble yearning to keep grayling and "black-spotted trout"—the cutthroat—in the Madison River. It is an odd thing to imagine that the Madison River, the muscle fish river of our time, was admired for its ability to nurture native cutthroat and Arctic grayling, fish that came to gain an unfortunate reputation for being handsome, delicate, and dumb.

The Madison River is our mesmeric water. We try to learn something about our national selves along its banks and depending on our times and our view of the world we have acquired different things from it. Because it flows on a northing course from Yellowstone, the nation's first national park, and gathers the geyser-fed waters of the Gibbon and Firehole rivers in National Park Meadow, the Madison has become a crucible of mystical nature, a world-famous river draining a landscape where the national idea of a naturally sacred place has never grown weary.

In its first Biennial Report for the years 1913-14, the Montana Fish and Game Commission praised the Madison River because in it were found "the trout and grayling." The commission said the Madison was "par excellence the grayling stream of Montana."

By this time, rainbow trout had been introduced to the Madison River. One is left with the notion, however, that this introduction was not widely embraced. As late as 1910, California's rainbow trout were said to mount carnivorous attacks on other fish, so their official plantings were limited to "isolated reservoirs only." By 1915, the Montana Fish and Game Commission acknowledged that the low public opinion of rainbow trout generated "considerable prejudice against [it] on account of his cannibalistic nature." But the commission was unwilling, or more likely, powerless, to stop the exotic rainbow's gone-wild colonization of the Madison River. In its 1918 report, the Montana Fish and Game Commission tried to repair the bad name of the malleable rainbow by suggesting that it would likely lead a peaceable existence in the Madison:

> Careful observation has convinced your Commission, and we so report that the native black-spotted trout or cut-throat trout, the grayling and the rainbow trout are the three varieties best suited to our lakes and streams. While it is claimed by some that the rainbow trout is destructive to the other species mentioned...we are not yet convinced that the rainbow trout are destructive to grayling because of conditions in the Madison River.

There were no similarly kind words for Europe's brown trout. In the same 1918 report, the Montana Fish and Game Commission chastised federal authorities for apparently foisting brown trout on Montana:

> Another instance of unwise planting of a new variety is found in the Madison River where Lock Leven or brown trout have been planted by the United States authorities and are very numerous....It is particularly unfortunate that plantings of this variety have been made in the Madison River, for this is one of the Montana homes of the Grayling. The more aggressive habits of the Lock Leven trout, its undoubted cannibalistic tendencies coupled with an activity and swiftness hardly equaled in other fishes makes it a dangerous denizen.

By 1930 the largest brown trout spawning station in the United States was located on the Madison River at Meadow Creek, near Ennis. The

*Possibility is the oldest American story.*

—William Kittredge, from "Home"

MICHAEL S. QUINTON

ONCE THE HOME OF NATIVE CUTTHROAT TROUT (RIGHT) AND GRAYLING, THE MADISON RIVER NOW SUPPORTS A WILD RAINBOW AND BROWN TROUT FISHERY.

Madison River drifted through time to emerge in a new world with shifting possibilities. In the March 1930 issue of *Montana Wildlife*, an early and often environmentally progressive Montana Fish and Game Commission publication, editor Floyd L. Smith wrote:

> Montana is credited with attracting the third largest tourist expenditure in the United States and Canada [so] Montana's streams must be kept stocked with fish if the state prestige as a tourist goal is to be maintained.

On the Madison the prestige was no longer balanced on the rare native home of cutthroat trout and grayling. The river was put to work to provide the state with trout. The early 1930s marked a period in fisheries work intensively focused on improving the state's hatcheries. The demand for brown trout had exploded, and spawning traps the size of military forts were constructed on the South Fork and on the main stem of the Madison River. In the autumn of 1933, workers collected about five million brown trout eggs from Madison River fish. In the spring, five million rainbow trout eggs were taken from fish caught in the same Madison River spawning traps. Within a human generation the Madison River was transformed from a native fishery to a manufactured one. And it is the manufactured one gone wild that we so love today.

We jump from rock to stone to boulder and back. We throw a line from the bank into a river of perpetual hope. In the pool rises an image of our forebears' interpretive response to their world. When we mourn a Madison River rainbow trout fishery ravaged by whirling disease, the fish we mourn are the rainbows our great grandparents argued against planting in the river in 1900. We mourn fish that are the progeny of rainbows captured in the spawning traps our grandparents built in 1930 to maintain a continental prestige that suggested an illusion of abundance. These are the rainbows our parents began to quarrel over in 1960—some wanted to continue the illusion, to forever ply the river with hatchery trout, but those who eventually won the day argued that the trout be permitted to go wild to the Madison. And as these few remaining years of this final decade of the century spill away, these are the wild rainbow trout we believe are as connected to the Madison River as our soul is to our lives.

I WAS TALKING IN APRIL TO BUD LILLY about this watery history during a visit to his Angler's Retreat. It was the first genuinely fine day of spring after a particularly difficult winter. Lilly was out back enjoying the morning sun and admiring a beautiful black and yellow streamer a caretaker had tied.

Bud Lilly's Angler's Retreat is the refurbished boardinghouse that originally opened in 1915. His mother took over the business in 1945. In those days the old Milwaukee railroad line terminated nearly at the courtyard of Violet Lilly's Three Forks, Montana, establishment, and the clean clapboard building with symmetrical rows of double-hung windows served as a kind of hostel for war-time railroaders. These days, the building's *Gunsmoke* architecture, boardwalk, and its location just off Main Street makes the place a kind of archetypal Old West roadhouse, a throwback refuge that seems in tune with an experience a fly-fishing wayfarer longs to find.

For Bud Lilly, everything is tied to the experience. In the late 1950s Madison River outfitters would often take Brownie box-camera photographs of their clients posing with the day's plentiful catch spread on the lawn before them. "They were all hatchery trout," Lilly says with lingering incredulity. "The idea was to bring in the dudes, give them a sack of fish and send them home."

At 70, Bud Lilly is an American fly-fishing icon and sage. He has fished the Madison River for more than 50 years, and even in retirement he remains one of the most famous trout-fishing guides in the world. He's a strong, broad-shouldered man who carries his frame like an aged athlete who took care of his body when it counted. He still

wades some of the Madison's more challenging waters, but what he sees on the Madison doesn't always please him. "How many angler days can the Madison River really support?" he asks. The river presently endures more than 100,000 such days a year. "I see the number of people out there, the number of outfitters, the number of boats and I see that it's not consistent with the proper experience. And I promoted this all my life, so I'm somewhat to blame, but I think we have some responsibility to pursue the idea that this is not a social experience. It's not an athletic event." Lilly's face speaks to a life on rivers. Behind the deep folds of weathered skin is an always calm expression. His eyes are lake-water blue with golden flecks of minute, ghosting brown trout surfacing in the center of a dark, flat pool. "Sometimes I think that all of the things I've helped to promote have evolved to the point where the fishery has become overused and maybe even abused," he says. "We may be reaching that point."

Through the Depression and up until the end of World War II, little annual stocking of hatchery-raised trout occurred in the Madison River because the previously planted brown and rainbow trout had gone wild to become free-living, wild fish hatched and reared in the stream. From 1948 to 1954, thumb- to finger-sized trout were planted, then in 1955 a near 20-year campaign to supply the Madison River with "catchable trout" commenced. By 1969, hatchery trucks would lumber to the river once a month from April through August, and each fishing season Madison River anglers would compete for 100,000 hatchery trout delivered for the taking.

In 1955, four years after he opened his trout shop in West Yellowstone, Lilly started to think about what hatchery trout lent to the Madison River experience. "As an old worm fisherman," he says, "I saw that for the fly fisherman the experience had to do with space. More than catching fish, the experience had to do with space on the water."

Somehow what Lilly reckoned to be essential to the fishing experience, he began to relate to Madison River trout. He envisioned the tonnage of hatchery trout annually dumped into the river crowding the wild rainbow and brown trout and imagined that wild trout needed space too. Over the next two decades Lilly was one of the major contra forces in a fight that would eventually provide the river's trout with the sanctity of unjostled space.

For many rank-and-file anglers of the day these were counterfeit ideas hardly worthy of comment, yet these ideas are the source of a wider movement that would eventually shake the popular dogma that produced the notion of the well-stocked stream and would result in a full-scale revision of how Montana managed its trout streams. But, as Lilly remembers, "Montana fishermen were addicted to hatchery trout." It would take 20 years to rehabilitate them.

Jerry Wells, now the administrator of FWP's Field Services Division, wrote in the July/August 1985 issue of *Montana Outdoors* that "the wild trout concept...polarized both department personnel and the fishing public, and resulted in several of the wildest public meetings this department has ever conducted."

To once and for all resolve the issue, an official research project was initiated on the Madison River in 1967. FWP fisheries biologist Dick

PHOTO COURTESY OF BUD LILLY

BUD LILLY'S TROUT SHOP IN WEST YELLOWSTONE HAS BEEN POPULAR WITH ANGLERS FOR MORE THAN 40 YEARS. LILLY IS PICTURED AT RIGHT IN THIS 1960S PHOTO.

E. NEALE STREEKS

EUROPE'S BROWN TROUT WAS ONCE MALIGNED AS "A DANGEROUS DENIZEN" AND TOO DIFFICULT TO CATCH.

Vincent set out to evaluate if and how the planting of catchable-sized hatchery trout affected the Madison River's wild trout populations. Results came rapidly. In its report to the governor in 1971, the Montana Fish and Game Commission quietly announced that Vincent's work suggested:

> ...substantial plants of catchable size trout cause summer mortalities in wild trout. Some few planted fish survive over winter, [but] the net result is a measurable reduction in the trout population. The implication, if these results are borne out in other studies, is that 'put and take' planting should be restricted to waters with insignificant wild trout populations.

MANY REMEMBER THE 1970S as the golden era of Madison River fly fishing. Bud Lilly's Trout Shop became a favorite seasonal haunt of literary fly fishermen like Arnold Gingrich, the founding publisher of *Esquire*, humorist Ed Zern, and writer and publisher Nick Lyons. Gingrich immortalized Lilly in his book *The Joys of Trout* with the line, "Bud Lilly is a trout's best friend." The praise was primarily aimed at Lilly's Catch and Release Club, which Gingrich called "fly-fishing's legion of honor." Lilly started the club in 1974 to get anglers familiar with the idea of releasing trout. The membership fee was a dollar.

In the 1970s, it was of no concern that the fish that made the Madison River famous resulted in the extirpation of native trout that an earlier generation thought should always define the Madison. There existed in the minds of people who paid attention to such things a noble yearning to provide fish and wildlife with a healthful environment, to maintain the quality or our resources, particularly our water resources. But, even in the early 1950s the Montana Fish and Game Commission cautiously tried to explain the trouble with brown trout:

> While it would be a very bold statement to say the brown trout was a completely unwise introduction; nevertheless, it has caused trouble. It was not even native to the United States, but was brought here from Europe....Native species have declined in abundance wherever it has been established. It is a good fish but the average fisherman is not skilled enough to catch him.

"We did like the brown trout," Lilly says. "We recognized the brown trout as a great sport fish."

For Lilly, and a vocal confederacy of like-minded anglers in the 1960s and 1970s, the important thing was to allow the trout that had successfully colonized the Madison to go wild and to teach anglers that the joys were centered on the pursuit of wild trout in a natural environment. "I've tried to think in terms of what was best for the resource," Lilly says, "and then to compete for the segment of the fishermen who recognized that approach."

The approach wasn't simply recognized, it actually defined the new fly-fishing culture. The North American Fly Tackle Association recently put number to the fly-fishing boom. More than seven million people in the lower 48 states fished with a flyrod at least once in 1993. Conventional wisdom suggests that the hard-core specialists who traditionally defined the catch-and-release sport practiced out of places like Bud Lilly's Trout Shop in the 1970s are now outnumbered six to one. Fly fishing sells cars. Sells books. Sells movies. Sells dreams.

While the ideas weren't his alone, Bud Lilly stood in the middle of a time and place that typified poet W.H. Auden's notion of a "whole climate of opinion." In due time, Dick Vincent's research data showed that indeed wild trout were unable to compete with the hatchery variety. Upon the cessation of hatchery fish planting, Vincent documented that the fall production of the Madison's adult brown trout more than doubled and the river's rainbow trout numbers increased eightfold. In 1974, FWP officially announced there would be no more state-sanctioned planting of catchable-sized trout in any Montana trout stream. Lilly's 20-year-old vision that connected the fly fisher's search for space on the water with the need for space in the water for wild trout was essentially correct.

IT SEEMS APPROPRIATE that Bud Lilly now has a presence at Three Forks, at the confluence of the Madison, Gallatin, and Jefferson rivers. The Missouri River headwaters. The town is named for the nexus of three great wild trout fishing rivers named for eighteenth century men of American Revolutionary honor. In modern fly-fishing lore, Bud Lilly will long be revered far more for his stature as an enlightened gentleman angler than for his commonsense fight to stop the planting of hatchery trout in the Madison River. He lacks the arrogance to be remembered for a fight, even if it was the quintessentially good one.

In Montana, the Madison River now rightly has Bud Lilly bookends. The trout shop in West Yellowstone, which he sold in 1982, still bears his name, as does his new Angler's Retreat, at the river's end in Three Forks. Lilly always seems to find his way to the cusp of another cultural embrace of fly fishing and now Three Forks appears to be a town on the verge of something too.

The railroaders are long gone, but at noon the Headwaters Cafe is full of

TIM EGAN

THE MADISON HAS ENDURED INCREASED FISHING PRESSURE AND A CENTURY OF CHANGE, BUT WHIRLING DISEASE MAY PROVE THE GREATEST TEST YET OF ITS RESILIENCY.

construction crews chowing down on platefuls of enormous beef ribs and mounds of mashed potatoes. Already in town is a fabulously refurbished inn with a San Francisco chef. On a Main Street that bends like a meandering river, among the storefronts are a neat fly-fishing shop, an upscale architectural firm, and an old Roxy-like theater under new construction. The attraction? Wild trout and great water. An experience.

The irony is that Lilly opened his trout shop in West Yellowstone about the time the earnest fish planting of the Madison River got underway. He opened his Angler's Retreat in 1995, the first year anglers understood that a drastic decline in the river's rainbow trout was the result of whirling disease, a once-little-known fish ailment that acquired household status when in hit the Madison River. Just as he was drawn into the hatchery/wild trout discussion, Lilly has been similarly summoned to ponder the significance of whirling disease. When it was announced that whirling disease had struck the Madison River, Lilly was immediately tapped to become a founding member of the Montana Whirling Disease Foundation, and Governor Marc Racicot asked him serve on the state's Whirling Disease Task Force.

"The only thing that can compare with the public attention drawn to whirling disease is the public attention that was drawn to the hatchery issue 25 years ago," Lilly says. "Whirling disease is going to create a new look at fly fishing and fishing period. Everyone you talk to knows about whirling disease; it has created an awareness of fishing all over the country, and as a result, it is going to create a demand for things to be done. Because it has struck the Madison River, I'm convinced that the river itself triggered the response."

Even Dick Vincent is back in the middle of the Madison fuss. In April he was appointed to coordinate the state's efforts to combat whirling disease. It's as if the river is an oracle calling back the old guard to reveal some hidden knowledge. "I think about that a lot," Vincent says. "The Madison River is special to people, and it hooks them. It hooked me. If the river is telling us anything, it's telling us there are some end points. What I'm afraid of is we'll keep fooling with it and end up with nothing of any quality. The fish will adapt; the problem for man is adaptation is too slow. We're too impatient."

Up to now the river has accepted our impatience. It has waited while we experimented with planting the river with new fish. It waited while we erected huge spawning traps to milk the new fish and it waited as we admired these constructions as something extraordinary. Did we touch the face of God, or simply scratch it?

What we know is that the Madison River has tended to accept our tinkering, and as we tinkered, the river's wild rainbow and brown trout have gone native to the Madison to become part of the river. While most spawning rainbow trout search for the calm of a small tributary stream, Madison rainbows spawn in the river's voluminous main channel. Brown trout usually seek water that flows like syrup where a long-lived wild fish could be said to be adapted to a rather bodacious but sedentary life under a log, beneath the low-hanging branches of a summer shade tree. Madison River brown trout, forced to struggle for a lifetime in the river's powerful current, have developed into a particularly muscular fish. Their muscularity is demonstrated to anglers who witness athletic vaults from the water in a manner common to the Madison but rare in other streams where the most one can count on seeing is the buttery slabside of a brown trout's belly as it darts back to cover. "It's a different fish," Lilly says. "They've adapted well and they've become so strong in that environment."

As we confront whirling disease, our hope for the Madison River will define its future. As scientists try to unravel the mystery of whirling disease, we should begin now to ask ourselves what we want for the river. Our best naturalists are mediators. They wait for understanding, they read the wild, and while waiting for a flash of insight, they approach a kind of genius that comes down a Thoreauvian notion: like it or not, we obey the same laws as all of nature.

Bud Lilly says it takes time to understand the nature of the Madison River, something he believes whirling disease will not change. "It takes a lot of observation to really figure out that river," he says. "You need patience, because patience alters your perception. These are the things that are important to the whole experience. There is no formula. There is only observation."

For Lilly the best way to observe the river is to climb into it. "When you wade the river, you are involved with the river," he says. "I guess you could say that I've been involved with this river for a long time. That's why I'm going to continue to push for wild trout. Wild trout are really a part of our heritage and I don't think we want to destroy what we have created." ■

WATCHABLE WILDLIFE

# Rock Rabbit

by JOHN FRALEY

Anyone who's spent time in the high country of Montana has heard the ventriloquial "kaach" or "eek" of the tiny, round-eared pika. Called "rock rabbit" or "coney" by some, this furry, guinea pig-sized relative of the rabbit lives exclusively in mountain talus slopes.

But the pika's unassuming and cuddly looks deceive; they maintain rigid territories in the rocks and are decidedly intolerant of each other. Males and females come together only during late spring to mate.

Pikas are probably best known for their habit of clipping and storing alpine "hay." During summer and fall, these diminutive critters spend lots of time on haying forays in meadows adjacent to the rockslide, returning with the prized plants in their teeth. They carefully cure the hay, then construct and maintain haypiles. Trappers and mountaineers held a superstition that the severity of the coming winter could be foretold by the size of the pikas' haypiles.

The pikas' territories in the rockslides revolve around these piles. They select from a variety of available plants while curing and storing hay; up to 30 species of plants—including clover, columbine, grasses, saxifrage, huckleberry, and willow—can be found in one haypile. During fall and winter pikas eat lichens from rock surfaces, the bark of subalpine fir and Douglas-fir, and plants from their haypiles.

MICHAEL S. QUINTON

*Because pikas do not hibernate, they clip and store alpine "hay" (below and opposite) to ensure a food source through the winter. Researcher Robin Kistler Moore (lower photo) attached tiny radio-collars to pikas to track their movements.*

MICHAEL S. QUINTON

LEE RENTZ

ROBIN MOORE

Because pikas have a high metabolism, feed on low-energy leaves and stems, and remain active year-round (they do not hibernate like their neighbors the ground squirrel and marmot), they must feed a great deal during all seasons. The haypile serves as their winter survival insurance policy.

The haypile in itself doesn't provide all the pika's winter food. Pikas forage under the snow on vegetation in meadows and on lichens. The haypile serves as a fail-safe—the higher the elevation, the larger the proportion of winter food made up by the haypile. In alpine areas where snow remains longer, temperatures are lower, and new vegetative growth begins later, pikas accumulate a larger security food source.

Two scientists, J. Millar and F. Zwickel, decided to test the theory that pikas do not rely on haypiles as their sole source of winter food. They removed all accessible haypiles of one group of pikas in Alberta and found no reduction in survival as compared with a control group. They concluded that haypiles may not be as important as they have been portrayed.

Researcher Robin Kistler Moore studied pikas in the Gallatin Mountain Range near Bozeman in the mid-1980s. She attached tiny radio-collars to a number of pikas so that she could follow their movements in the talus rock labyrinths during summer, and during winter under deep snow cover. Moore found pikas to be fascinating but difficult animals to study.

"I wanted to study pikas because I thought they were intriguing," she says. "I'm interested in alpine environments, and pikas are characteristic inhabitants of these harsh areas. I also thought the pika had an interesting lifestyle."

Another reason Moore chose to study pikas was the lack of information about what they do during winter. Researchers knew that the animal doesn't hibernate, but little was known about the activities of pikas under the snow.

Moore identified eight activities displayed by pikas: meadow feeding, haypile feeding, haypiling, social

behavior, activity below the surface, perching, inactivity below the surface, and investigating. She found that inactivity below the surface was the most common behavior in all seasons, followed by meadow feeding and activity below the surface. Pikas fed on haypiles only during winter.

Moore found significantly greater activity in fall than winter, but she found no significant differences between other seasons. Pikas were active off and on 24 hours a day during all seasons.

Pikas never emerged above the winter snow during Moore's study. She measured air temperatures near zero degrees Fahrenheit, but this didn't shut down pika activity; pikas stayed below the snow surface in the rocks where temperatures remained just below freezing.

"I found by the radio locations that pikas remained active during winter, except in the very coldest temperatures," explains Moore. "In general they foraged in meadows and moved around their haypile area. The overall intensity of their activity was reduced."

Moore, like other researchers, came to the conclusion that the pikas' haypiles serve as a supplemental, not primary, food source during winter. She speculates that the haypiles gain importance during unusually harsh or long winters.

Moore faced a dilemma in tracking pikas. Pikas were difficult to trap, offering limited opportunity to replace radio-collar batteries. She needed a radio-collar battery pack combination that would not be too heavy yet would transmit a signal for an extended period, particularly in winter. "I found that I had to max out on the transmitter pack-body weight ratio," she explains, noting that the radios weighed about one-third of an ounce.

Another challenge she faced involved the actual attachment of the collar. The pikas were so tricky to work with that Moore ended up hauling trapped individuals back to the laboratory. "Pikas are really high strung," she says, "so I had to sedate them to attach the collars." A few pikas became agitated and died in Moore's hand, apparently from stress.

One female pika, which Moore dubbed "No. 2," behaved aggressively when Moore returned her from the lab to the study site after attaching a collar. "Two or three neighbors had moved into No. 2's territory, and they were sitting on her rock near her haypile," Moore recalls. "She rushed to her rock and began a series of loud vocal threats and posturing. Then she proceeded to chase and harass the invaders out of her territory, one by one. It took her an hour, but she reclaimed her territory."

TOM J. ULRICH

*Pikas utter a variety of calls to defend their territories from intruders and warn the colony of impending danger.*

Most researchers who have observed pikas closely are struck by the aggressiveness of this cuddly looking, furry runt. Gerald Svendsen, who studied pikas in Colorado during the 1970s, wrote that when male and female pikas met, the results were unpredictable. "On one day the female chased the male, the next day it was reversed, and the next day they sat and fed next to each other."

Svendsen described one encounter between two female pikas that sounded like the alpine equivalent of the Ali-Frazier "Thrilla in Manilla" fight. The two females tangled and chased each other for 10 minutes, including "three fights with tumbling, kicking with the hind feet, boxing with forepaws, and biting."

Many researchers have described the pika's method of maintaining a territory, or area of social dominance, which usually measures about 500 to 900 square yards. First, pikas advertise by rubbing their cheek scent pouch on rocks around the perimeter of their territory. Second, they resort to aggressive acts like posturing threats, calls, chasing, and fighting. Pikas steal hay from their neighbors' haypiles and readily take over haypiles of pikas that die during winter.

Usually, plant eaters are territorial during mating and not during feeding periods; the opposite is true of pikas. They are not territorial during the brief mating period, but they are territorial during all other times of the year. In pikas, the female maintains a territory separate from the male.

David Barash studied pikas during the summer of 1970 near Logan Pass in Glacier National Park. Like other researchers, he found pikas to be intensely territorial and intolerant, but he noted that intolerance diminished during the spring mating period in May. He found that pikas used two vocalizations: the long call or song; and the short call or "kaach." Pikas chattered while they mated, with calls lasting 20 seconds or more.

Pikas mate in spring so that birth of young coincides with snowmelt and emergence of green vegetation. Young pikas, kicked out of the nest in midsummer, experience a particularly tough life. Adult pikas would never win parent-of-the-year awards. They force newly weaned young out of prime territories and out to the edges of the rockslide. Adults often chase and harass young pikas until they leave the area. Even worse, adults will not tolerate the young in rock tunnels over

D. ROBERT FRANZ

DAN & CINDY HARTMAN

*Young pikas (above) are born in spring and kicked out of the nest in midsummer. Once weaned, they are forced away from prime territories out to the edges of the rockslide. Weasels (right) are small enough to enter the rock tunnels and hunt down pikas.*

the winter, like some hibernating mammals do. Because of this lack of parental care, many young pikas die.

Pikas must keep a constant vigil for predators. Because they are so vulnerable, pikas forage only a short distance from their home talus slope. This inextricable tie to talus has led many to refer to the pika as an "island species."

FWP nongame coordinator Dennis Flath points out that the pika has specialized in living in a unique, extreme environment not available to other species. This lifestyle results in limited interbreeding and genetic exchange. Flath says that taxonomists recognize 36 subspecies of North American pika, a testament to how the animal has adapted to isolated, specific islands of habitat.

Pikas communicate with a variety of calls when alarmed or when leaving territories on short feeding and haying excursions. Pikas respond to alarm calls of hoary marmots and Columbian ground squirrels; these animals in turn respond to pika alarm calls. Naturalists agree that it's hard to describe the variety of pika calls, but you know the calls when you hear them.

L. M. Lutton, who studied alarm calls of pikas in Colorado, found that when a marten approached, pikas kept the animal in sight and belted out warning calls at the expense of being seen. Evidently, pikas knew that martens were too large to penetrate their rock tunnels. But when a feared short- or long-tail weasel approached, pikas were silent, because weasels can enter the rocks and hunt down pikas.

In his 1950s natural history book, *Autumn Across America*, Edwin Way Teale gives an engaging account of pika habits, including a story of a weasel invading a pika colony. The chase began when a young pika raced by between two rocks with a brown streak (the weasel) behind it. He described how four pikas, displaying "astonishing speed and agility," used a tag-team approach to evade and tire the larger, faster weasel.

"By crisscrossing in the corridors of the rock slide...the pikas...distract the bloodthirsty weasel," he wrote. Teale noted that the pikas upset the intense concentration of the weasel on one victim and saved the lives of all. Teale's story seems to contradict the notion that pikas are only reclusive individuals with no connection to other pikas in the colony.

Teale's account of pika habits formed the basis for Elizabeth Coatsworth's children's book, *Pika and the Roses*. "They are gentle and inoffensive," she wrote, "but in a crisis they show plenty of courage."

Moore noted that the pikas she studied in Montana's Gallatin Range had individual quirks. "I came to know them as unique individuals," she said. "I came to appreciate their little personalities."

In turn, the pikas became accustomed to Moore. "I watched them from the base of the rockslide, clearly visible to them," she says. "They were oblivious to me as long as I didn't make sudden movements. In fact, I had pikas running over my feet at times."

Like many researchers, Moore formed a gut-level respect and tie to the animals she studied. "I got to know them, understand them, and see what they had endure to live year-round in that harsh environment."

Naturalist Teale came to feel the same way about these "elfin horn blowers," writing that no other animal "...ever had so much charm-at-first-glance as this little caller of the mountain tops. Industrious and provident, they fill a special niche in the world of lonely heights above timberline." ■

# North American Pika:
# Vital Stats and Watchable Tips

DONALD M. JONES

**Classification:** The pika is a "lagomorph," or member of the rabbit and hare order. There are two species in North America: *Ochotona princeps* (common North American pika), and *Ochotona collaris* (collared pika). Close relatives include the Himalayan pika and the Japanese pika. The pika is the most primitive species in the order: no scrotum is present in the male, females lack a vulva, and feces and urine are expelled from a common opening.

**Common names:** Rock rabbit, coney, little chief hare, calling hare.

**Appearance:** About the size of guinea pigs, pikas weigh 4 to 6 ounces. Their fur is brown, shading to gray near the rear of the body; other features include small, rounded ears, small feet, cleft lip, grayish whiskers, and no external tail.

**Distribution:** Sierra Nevada-Cascade and Rocky Mountain chains. Pikas did not always live in talus slopes; thousands of years ago, they inhabited grasslands in valley bottoms. They retreated upslope with warming temperatures after the last glacial period and became isolated in mountain areas.

**Metabolism:** Pikas have a high metabolic rate; their year-round body temperature is about 104 °F. They produce two types of feces; one type is reingested so more nutrients can be extracted.

**Lifestyle:** Pikas do not hibernate; they are active day and night year-round, even under snow during winter. Known as "alpine haymakers," they clip a variety of plants and store them for winter use. Pikas are intensely territorial and intolerant of each other. They can live up to 7 years.

**Mating:** Pikas mate in early spring, have a 30-day gestation period, and an equivalent weaning period. Most pikas apparently have two litters per year but raise only one. They produce the second litter in case the first fails.

**Best places to see pikas:** Alpine and subalpine talus slopes with rocks and boulders at least 1.5 feet in diameter. Pikas live in interconnected tunnels formed by these boulders.

**Best months:** June through August, or whenever snowmelt at high elevation permits access.

**Best time of day:** Any time, but pikas are most active in morning and evening.

# HIGH, WIDE, and Speckled

by DAVE CARTY

One of the bigger cutthroats I've seen was caught by a friend, not me, while I groaned in protest from my sleeping bag, too sick to pick up my rod. A few yards from the foot of my bag the lake we had spent most of that afternoon hiking to lapped quietly at the shoreline, a soft, gentle rhythm that did little to soothe my mounting fever.

My sickness, whatever it had been, vanished as quickly as it had come late the following morning, but by then the trout were off their feed, and I failed to catch a single fish. Such is life.

The trout of alpine lakes—usually cutthroats, although goldens and brookies are also fairly common in Montana—aren't always easy to catch. Nor is backpacking, the only cheap method by which you can reach these fish, a sport for couch potatoes. After 25 years of backpacking and backpack fishing, I've learned that, while almost anyone can toss a pack on his back and march into the woods, those who are severely out of shape will find the trip more an ordeal than an adventure. Still, anyone who is in reasonably good condition should do just fine, albeit at the cost of a few sore muscles.

For the backpacking side of the backpacking=fishing equation, you'll need decent, quality gear, which I recommend you rent or borrow before you buy. Although there isn't room in this piece to list all the equipment you'll need, you must invest in a good backpack. There are endless arguments about design; try on a few and see what fits. Most backpackers use internal-frame packs these days, which are quite comfortable in cool weather but hot in midsummer. I've used external-frame packs

E. NEALE STREEKS

BILL BUCKLEY/THE GREEN AGENCY

DAVE CARTY

*Good hiking boots, a comfortable backpack, a stove, a lightweight tent, a down or synthetic sleeping bag, and a sleeping pad are the main ingredients for a successful backcountry outing.*

for years, which are also comfortable (at least the newer models), relatively cool, and often available used.

You'll also need a sleeping bag, with either down or synthetic fill. Synthetics are cheaper but marginally heavier than down, although both will keep you warm. Don't believe anyone who tells you a synthetic bag will keep you warm when it's wet, however; I defy one of these people to actually sleep in a wet bag. But a damp synthetic bag may well keep you from freezing to death, so if you anticipate future canoe trips or, say, a jaunt through a coastal rain forest, a synthetic bag may be worth looking at. For the record, a sleeping pad of some sort is also a must, for all sleeping bags are half as effective without them.

Unless you plan to cook over a fire—definitely *not* something I recommend—buy a lightweight stove. On a Fourth of July trip last summer, a friend of mine almost left his stove behind, claiming he'd always cooked over a fire and couldn't see why this trip would be any different. As it turned out, it rained most of the time we were there, drenching what little wood we could find and making starting a fire, much less cooking over one, an exercise in frustration. My buddy finally gave up and switched to his stove. The moral: this could happen to you. Buy a stove.

You'll also need shelter, although it's possible to rig a lean-to from a large poncho, as I did for years. These days I carry a tent, although it lacks a floor, which saves precious ounces. Generally speaking, your tent will weigh more than any other piece of gear you own, so buy the lightest one that gives you the space you need.

There's an infinite number of additional accessories you can buy, some of them necessary, some of them wonderful, some of them useless. A few of my favorites include a nylon water bag, a lightweight headlamp (leaves my hands free for cooking, reading, or cleaning fish), a small plastic mirror, a hairbrush (you'll want one, believe me), no-rinse soap, a backpacking towel and washcloth, and a water purifier. Finally, you'll need boots, and I can only recommend that you buy the best you can afford. Nothing—*nothing*—else will work if your feet hurt.

Most of the lakes I've hiked to I've found through word of mouth, while others I've located by poring over maps of an area I wanted to visit. Western Montana is lousy with high-altitude lakes; a map of the Beartooth Range north of Yellowstone Park, for instance, will reveal a plethora of them, most of which have fish. Once you've got a lake or two in mind, buy a map of the area and brush up on your map and

JIM EGAN

compass technique. Don't rely on trails or signs to show you the way; although they're helpful, trails and trail signs have a way of vanishing when you need them most. Another tip: leave shortcuts to experienced hikers. Almost every time I've become lost—and it has happened plenty, I'm ashamed to admit—it was because I opted for a shortcut I was sure would save me miles of hiking. Instead, I found box canyons with no way out, despite the "pass" I'd seen on the map; or unassailable cliffs I could find no safe route around. Once, hoping to bypass a circuitous trail and intercept a road several miles below us, a buddy and I found ourselves in a hellish tangle of wet timber and deadfalls, where, unfortunately, we were forced to spend the night. Never again.

DAVE CARTY

*Western Montana has an abundance of high-mountain lakes, and most of them have trout. Once you've chosen a destination, buy a good map of the area and brush up on your map-reading skills.*

When I arrive at the lake I plan to fish, I set up camp immediately, hoping to beat the ever-reliable afternoon storms. Then, if the fish are rising, I'll rig up and head for water. My gear, which I've winnowed to a bare minimum after years of experimentation, includes a lightweight spinning rod with a fast tip; an equally lightweight reel; a selection of spinning bubbles, the smallest I can find; one box of flies, heavy on nymphs and scud patterns; and another box of small spoons. Split shot, fingernail clippers, and swivels also make the cut. All my gear fits into a small nylon belt pouch.

Although I've been a fly fisher for years, I usually don't carry a flyrod on backpacking trips, unless I know I'll be fishing a stream rather than a lake. Most mountain tarns—although

certainly not all of them—are either too windy or too overgrown with shoreline trees for a nonwader to fly fish, and packing waders or a float tube is an investment in extra weight I don't want to make. I realize that many will choose to fish with a flyrod or nothing at all, and to these dedicated troops I can suggest only this: go for it. I'll stick with my spinning rod and the considerably fewer headaches it engenders.

Assuming you're adequately equipped with either fly-fishing or spinning gear, your next step is locating fish. Although you can bet the fish are going to be in the lake, they won't make themselves easily available, especially at mid-day. A good tactic, if you have a high vantage point, is to scan the shoreline for dropoffs and points of land that jut into the water. Unlike stream-dwelling fish, which wait for food to come to them, alpine trout cruise the banks in search of dinner. If you're a stay-in-one-place-and-cast kind of angler, rather than the peripatetic type, stay in one place near a dropoff or point, for sooner or later the fish will come to you.

Dropoffs aren't the only spots to locate fish, however. At a lake I visited several years ago, two friends and I stationed ourselves at a stream inlet on the lake's upper end. I was using a flyrod that day, and since my rod was much too short to reach the trout rising in the middle of the lake, I cast into the current at my feet, let my line drift into the depths, and slowly retrieved it with a hand-twist retrieve. I caught trout on small black nymphs until well after dark, fighting and releasing cutthroats up to 12 inches long. My buddies, fishing with spinning bubbles and nymphs, did nearly as well. I'm convinced it was the abundance of fish at the mouth of that stream, rather than our technique, that made that evening so successful.

Outlets can also be good, depending on how big they are. Even tiny trickles can narrow into substantially wider streams a mile or so below the lake, and may miraculously support fish. I fished one such stream for years and never failed to take trout. The fish were small—11 inches was a monster—but they were loads of fun to catch on ultralight spinning or lightweight fly-fishing gear. Once, a 10-incher jumped completely out of the brook and lay flopping wide-eyed on the bank, no doubt as surprised as I was. I eased him back into the water and turned him loose.

Although alpine trout can be maddeningly selective, I've found that a basic selection of nymphs usually works. Included in my box are Hare's Ear nymphs, Zug Bugs, Pheasant Tail nymphs, and scud patterns, all in sizes 14 and smaller. Unless I'm packing a flyrod, I use few dries; retrieving them behind a spinning bubble invariably pulls them under. In the hardware department, I stock up with small copper and brass spoons. For some reason a spoon with a fluorescent orange stripe appeals mightily to certain trout, particularly cutthroats.

Time of day will have as much to do with your success as the equipment you use. Invariably, fishing is best early and late, for the wind often dies at these times and the trout, which tend to avoid harsh sunlight, drift to the surface. Yet, fishing during the middle of the day can be almost as good under certain conditions. Wind—the nemesis of fly-fishermen—can be the spin fisherman's friend, provided it's not blowing too hard. When an afternoon breeze is just strong enough to riffle the surface of the lake, trout sometimes feel secure enough to feed on top, and although you often won't be able to see them, a slowly retrieved bubble and fly may get their attention.

That said, it's more likely you'll catch fish on hardware than flies during the middle of the day. For afternoon fishing, I select a spoon based on ease of casting rather than looks, heave it as far as I can into the center of the lake, and reel it back in, varying the depth and speed of retrieve until I find a combination that works. Remember, too, that trout often follow a spoon to within a few feet of shore before striking, so don't be in a hurry to yank it out of the water.

Try to go easy on the lakes you fish. Although alpine trout can be quite large—my biggest was a 19-inch cutthroat—it takes years to produce fish of that size. Few of these lakes provide adequate spawning habitat for reproduction, and most depend on stocking programs to keep them fishable. It's conceivable that a summer of moderately hard fishing could wipe out a lake's entire population.

On the other hand, it won't hurt to keep a couple of fish for supper from time to time, and you probably should—if for no other reason than to have a ready excuse for those who have never made such a trip and can't understand why anyone would want to work that hard. You can tell them it was for the fish you ate...but anyone who has ever been on a mountain lake at sunset will know better. ■

BILL BUCKLEY/THE GREEN AGENCY

*Because trout grow slowly in the cold water of alpine lakes, the author prefers to release most of his. But he admits a fish or two for supper from time to time adds spice to a high-country adventure.*

BOB ZELLAR/BILLINGS GAZETTE

# TROUT THAT FLY

by Mark Gaub and Daryl Hodges

*The helicopter flight from the Yellowstone River Trout Hatchery in Big Timber has been pretty smooth up to now, but things are deteriorating fast. We're still gaining altitude near Red Lodge above Red Rock Canyon. The altimeter says we've climbed to 10,000 feet. A glance out the window shows that the Cooke City Highway is also still climbing. We're fully loaded with Yellowstone cutthroat trout, water, the pilot, and a mildly airsick fish culturist. Our destination is way up on the Absaroka-Beartooth plateau. What's a chopper load of fish doing up here in the first place?*

Air plants are now an integral part of Montana Fish, Wildlife & Parks' five-year stocking program and essential to meeting the department's fisheries management goals. They are done with both helicopter and fixed-wing aircraft.

Air plants had their beginnings in Canada in the 1930s, when Dr. Gustave Prevost of the University of Montreal successfully stocked over 200 lakes and streams in the Quebec region. He reported that fish dropped in water from heights of up to 1,000 feet were unharmed.

Impressed with the Canadian success, J.W. Schofield of Helena, Superintendent of State Fisheries, began toying with the idea. He was sure that the small trout could be planted more cheaply and faster from the air, although with a slightly higher loss, than with the pack trains in use at the time. He scheduled an experiment at Lake Elmo, northeast of Billings, to determine the method's feasibility.

BOB ZELLAR/BILLINGS GAZETTE

*Daryl Hodges, manager of FWP's Yellowstone River Trout Hatchery, readies cutthroat trout fingerlings for transport to a lake high in the Absoroka-Beartooth Range.*

Schofield enlisted several people to assist him: Herman Henrickson, a local Shell Oil Company agent and pilot; Dick Logan, manager of the municipal airport; Forest Keller, superintendent of the state fish hatchery in Big Timber; Charles Fuqua, superintendent of the federal hatchery in Bozeman; Art Trenerry, secretary of the Billings Rod and Gun Club; and B.L. Price, chairman of the Montana Fish and Game Commission.

BUFFALO BILL HISTORICAL CENTER, CODY, WY. CHARLES BELDEN COLLECTION

*Loaded with trout fingerlings, Herman Henrickson's plane prepares for takeoff from the Billings airport in the 1930s.*

Herman Henrickson piloted his plane four times from the airport. On the first flight, two galvanized tin cylinders filled with water and trout fingerlings were dropped, one from 100 feet and the other from 400 feet. These cylinders, about three feet in length and open at one end, were nearly flattened from impact, but only one dead fingerling was observed.

On the second flight, fish were dropped from buckets at heights of 100 and 400 feet. A slight miscalculation with the first drop resulted in some fish hitting the shore of the

lake and the rest falling in very shallow water. Many were picked from shore and thrown back in the water. Of those hitting the shore, only a small percentage were killed. The second drop hit the center of the lake and no injured or killed fish were found.

On the third flight, two cardboard containers containing water and trout fingerlings were dropped from 100 feet. Both cartons broke open when they hit the water and only a half dozen dead fish were found. On the fourth flight, 1,000 fish were dumped from buckets at 100 feet with only a few mortalities observed.

Based on these results, Schofield concluded the "open dump" method—pouring the fish from a bucket—had the most promise. Left to float through the air by themselves, the small fish acted like feathers, fluttering as they fell; as a result, they landed more softly than with the other methods.

Today's air plants are conducted with planes and equipment vastly different from those of Schofield's day, but the principle remains the same: small fish are released from special tanks to float like feathers to the water. In recent years both fixed-wing aircraft and helicopters have been used for planting high mountain lakes, but helicopters have the advantage of being able to hover close to the water.

BOB ZELLAR/BILLINGS GAZETTE

*FWP's powerful Hughes 500-D helicopter, flown here by veteran pilot Doug Getz, wings its way toward one of eight high-country lakes that will stocked during an early morning run.*

A "*M*A*S*H* era" Bell 47 helicopter was the workhorse for air planting fish in lakes from the late 1960s until 1992. A pair of external tanks on each side allowed four lakes to be planted in one trip. In 1992, tanks were tailored for FWP's Hughes 500-D helicopter. With its greater power, it is capable of planting eight lakes in one trip with the eight gleaming aluminum tanks mounted on it. Each tank has a trap door on the bottom that can be electrically tripped from the pilot's seat. Oxygen supplied to the tanks keeps the two-inch fish healthy on their flight to freedom. On reaching the lake, the pilot locates an area where there will be adequate refuge for the fish. With the helicopter hovering five to ten feet above the water, he flips a switch and pushes a button to release fish from the

appropriate tank. Like a slap on a newborn baby's bottom, the sudden arrival at their new home causes the little fish to spring into motion and seek refuge.

FWP's Yellowstone River Trout Hatchery in Big Timber is responsible for raising the Yellowstone cutthroat trout used for air planting in mountain lakes east of the Continental Divide. The regional fisheries managers in Billings, Bozeman, and Great Falls determine the lakes to be planted each year and the number of future "rod benders" to be put in each. Lakes are usually stocked every three to six years. Although some mountain lakes with suitable spawning habitat have self-reproducing populations, most require stocking to maintain a recreational fishery. Not all high-mountain lakes are stocked; many are intentionally left fishless to preserve their unique biological characteristics.

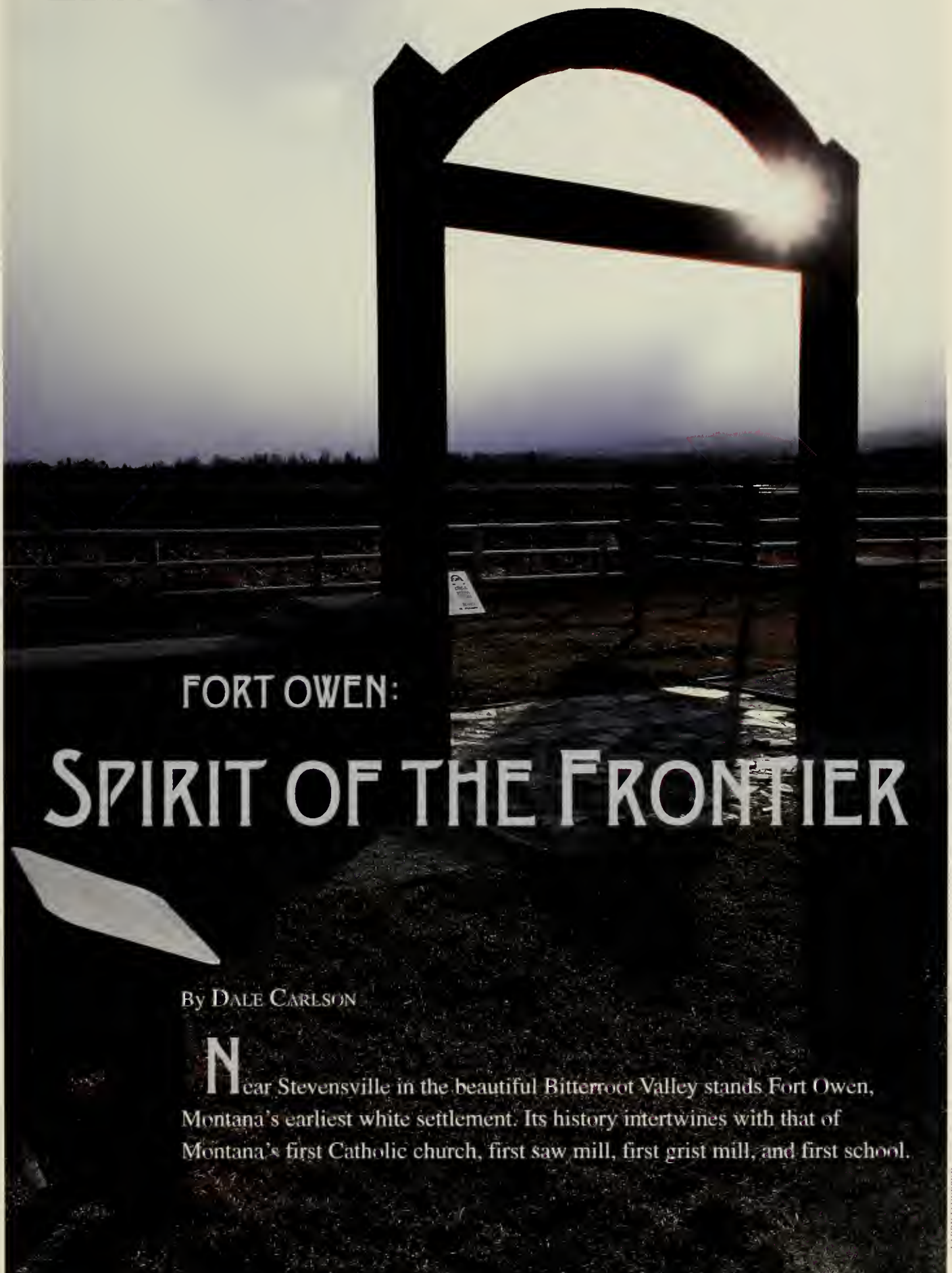
BILL BUCKLEY/THE GREEN AGENCY

*Most alpine lakes require stocking to maintain a recreational fishery. Statewide, FWP stocks more than 200 mountain lakes to provide fishing opportunities in unsurpassed surroundings.*

With more than 100 lakes in the Absaroka-Beartooth Range receiving fish on this rotating basis, FWP's Region 5 (Billings) needs about 40,000 fish yearly for an average of 15 lakes. Other mountain ranges that receive fish are the Crazies, Little Belts, Madison, Gallatin, Tobacco Roots, Pioneers, Spanish Peaks, and Bridgers. In all, about 40 remote lakes east of the divide receive air drops of fish each year from the hatchery at Big Timber.

The plants, which are done in August, begin with hatchery personnel leaving the hatchery at 3:00 or 4:00 a.m. with a truckload of fish. They meet the helicopter in time to take advantage of the cool, still morning air. Cooke City, Ennis, Dillon, Bozeman, White Sulphur Springs, and Helena are all used as jumping off points for air plants east of the divide, depending on the mountain range being stocked. Dropping fish into lakes at elevations of up to 10,000 feet takes a proficient pilot. After each sortie to plant a group of lakes, the pilot lands and refills with fuel, water, and fish for another group of lakes.

Many mountain lakes west of the divide, too, are stocked by plane or helicopter each summer with cutthroats and rainbows from hatcheries at Anaconda, Arlee, and Eureka. Statewide, more than 200 lakes receive these "trout that fly" to provide hikers and anglers the thrill of rolling out of a warm sleeping bag to try their luck at catching breakfast from the pristine waters of a high-mountain jewel. ■



# FORT OWEN: SPIRIT OF THE FRONTIER

By DALE CARLSON

Near Stevensville in the beautiful Bitterroot Valley stands Fort Owen, Montana's earliest white settlement. Its history intertwines with that of Montana's first Catholic church, first saw mill, first grist mill, and first school.

LARRY JAVORSKY

Father Pierre Jean DeSmet, along with fathers Point and Mengarini, established St. Mary's Mission at the site of present-day Fort Owen in October of 1841. When lack of money and Indian problems forced closure of the mission in 1850, Major John Owen purchased the property from the Jesuit fathers.

Born in 1818 in Philadelphia, John Owen (self-appointed "Major") came west in 1849 under contract as a trader for a regiment of U.S. Mounted Riflemen. Charged with protecting travelers on the Oregon Trail, the regiment camped that winter near Fort Hall in Idaho Territory. Owen, fascinated by the Northwest's wild landscape and eager for new challenges, decided to stay behind when the soldiers moved on in the spring. He believed he could make his fortune as a trader among the region's fur trappers, mountain men, and Indians; but first he needed a trading post—a headquarters for his dream empire.

LARRY JAVORSKY

*Restoration of the east barracks (the only remaining original building) and construction of boardwalks and fences are some of the projects recently completed by the Parks Division in cooperation with volunteers from Stevensville-area groups and service organizations.*

Over several years, Owen built a palisaded log fort a few hundred yards from the old mission, later replacing it with more substantial adobe walls and buildings. He planted crops and orchards, purchased livestock, and continued to operate the Jesuits' grist and saw mills. he sold supplies to trappers, military surveyors, Indians, prospectors, and other traders, accepting furs, livestock, and labor in trade when his customers lacked hard cash. As his success grew, he provided himself, as one visitor noted, with "fine wines and luxurious appointments," and stocked his large library with many works of history and literature. "Major Owen lived at the fort like a king," said Jesuit missionary Father Lawrence Palladino.

In its final adobe form Fort Owen was an imposing structure, serving as a refuge for many of the valley's inhabitants. The fort's 10-inch-thick walls, which featured two stout gates that could be secured with crossbeams and wrought-iron bars, stood a foot higher than the buildings. Almost every room in the sturdy barracks had a large fireplace, cupboards, bookshelves, and a wooden floor. A well housed in a little shed stood at the center of the courtyard. All the lumber came from Owen's sawmill, and tons of potatoes and other vegetables were stored in a large root cellar.

Soon after his arrival in the Bitterroot Valley, Owen befriended the local Flathead Indians; in 1856, the U.S. government named him its agent to the Flathead Tribe. For six years Owen did his best to serve the Flatheads, but he was often frustrated by government policies he believed were turning friendly Indians into enemies. Finally, disgusted and bitter, Owen resigned as agent.

The decade of the 1860s brought many changes to the Bitterroot Valley. With the influx of trading posts and gold camps, Fort Owen was no longer the only bastion of civilization, and its popularity declined. Owen remained as proprietor until 1872, when ill health forced him to sell the property to William J. McCormick. Owen died in Philadelphia in 1889, and McCormick died a few months later.

In 1937 the McCormick heirs donated an acre of land enclosing the historic ruins of Fort Owen to the State of Montana to be managed as a state monument. In 1971 it was entered on the National Register of Historic Places.

Today, Montana Fish, Wildlife & Parks manages the site as Fort Owen State Park. With the help of numerous individuals, groups, and service organizations, the Parks Division has restored the east barracks—the only original building—and reconstructed the fort's wellhouse, privy, and boardwalks. A historic log house containing relics from Montana's homesteading era has also been moved onto the grounds.

Some say that John Owen's frontier spirit still abides here, courageous, adventuresome, and generous. Each year, hundreds of people from around the country take a step back into Montana history by visiting the fort that bears his name. ■

LARRY JAVORSKY

**Location:** One mile west of Stevensville in the Bitterroot Valley.
**Size:** One acre.
**Access:** From Missoula travel south on U.S. 93 to Stevensville junction, then a half mile east on Route 269.
**Management goal:** To protect and preserve the historical and cultural resources and to provide educational opportunities for the public.
**Facilities:** In addition to the historic structures, the park has an area for picnicking.
**Season:** Open all year, sunrise to sunset.
**Miscellaneous:** There is no park fee, but cash donations are accepted.
**Recreational/educational opportunities:** picnicking, photography, interpretive panels. Schools and other groups with over 30 members should make advance arrangements by calling (406) 542-5500.

GEORGE WUERTHNER

LARRY JAVORSKY

*Interpretive displays (top photo) and a historic log house containing relics from the homesteading era (above and right) are a few of the attractions at Fort Owen State Park.*

*Sandy Seaton and Scott Sallee with their hounds.*

# Montana Rosie and

story and photos by SANDY SEATON

Bawling and growling, the three black bear cubs tumbled off the shale slope. The overpowering smell of a winter-killed elk spurred them on; they hadn't eaten since they had lost their mother three days before. One cub was definitely the leader, and his sharp bites drove his siblings down the mountain.

There! The decaying carcass of the dead cow elk signaled a feast to the hungry bears. They dove in and wolfed their meal, ignoring the loud scolding of several startled magpies. The cubs' shrunken stomachs protested the gorging, and they napped soundly between feedings.

The cubs spent the day under the huge pine that sheltered the winterkill. The orphans had been spotted by a rider near their dead mother's body days before, and the game warden had been searching for them every day. The six-pound cubs were at the mercy of eagles, adult bears, coyotes, and mountain lions; their lives would be short without the protection of their mother in the backcountry north of Yellowstone National Park. The little bears had traveled more than two miles in their quest for food, and every day lessened their chance of rescue.

On the fifth day the warden, Randy Wuertz of Emigrant, called Scott Sallee and me and asked if we would bring our hounds and try to track the cubs. Houndsmen like us throughout the West often volunteer to help fish and game departments. In previous years, Scott and I had caught young problem mountain lions for Montana Fish, Wildlife & Parks (FWP) so they could be tranquilized and safely transported. But this was our first bear call, and we were doubtful of success; it had been five days since the cubs left their mother, and we'd had two days of heavy rain in that period. But we were more than willing to try.

We met Randy at the trailhead with our horses and Red Montana Rose, our 5-year-old female redbone hound. We didn't want to take a lot of dogs. Too many would increase the chances of catching the cubs on the ground, and we wanted them

*FWP Warden Randy Wuertz.*

*A cub peers from a gunny sack.*

# *the* Three Bears

safely up a tree. Randy had his riding horse and a pack horse with panniers, or pack bags, to give the cubs a ride out if we could find them.

We rode for an hour to the site of the sow's body, then we dismounted and cast Rosie around the creek bottom. Nothing. She made wider circles and kept working, snuffling like a vacuum cleaner in the shale rocks. We could see the doubt in Randy's eyes, and we weren't feeling too confident ourselves. Finally Rosie let out one long, mournful bawl; Scott explained to Randy that she smelled *something*, and the track was very old. We don't have a season to run bears with dogs in Montana, and for all we knew Rosie had an old bobcat scent. But she was wagging her tail and working down off the hill, so we grabbed the horses and followed.

Two miles later, Rosie went nuts. Her unmistakable locating bawl and frenzied tree bark always sends shivers down my spine. We could only hope it was the three little cubs she had in the huge tree. We searched the branches—yes! In the very tip-top of an 80-foot Douglas-fir, swaying in the wind, were three tiny black bundles of fur with brown muzzles.

Now that Rosie's work was done, we had to decide how to get the cubs down from that towering tree and into our gunny sacks. Randy climbed a tree opposite on the steep slope, and shot a lightly loaded tranquilizer dart across the sky. But the cubs were so small and the distance so great that the warden couldn't use a heavy enough charge to bridge the gap.

So, we needed an alternate plan. Scott was the only one willing to climb the tree; we rigged up a 15-foot-long branch with his lariat rope and he clambered up the fir. But whenever he would try to loop it over a cub, the little bear would squeal and bat the rope. Randy compared it to "trying to thread a needle with mittens on." But what else could we do? We were totally unwilling to leave the cubs there; it was obvious they were too small to survive on their own for long.

Now came the fun part—we had to find a way to pry

those cubs from that swaying fir. Randy searched through his tranquilizer kit and found one syringe and needle. Scott taped it on the end of his stick, ready to depress, and climbed skyward again. Meanwhile, I tied Rosie back over the hill, much to her chagrin, and Randy grabbed two gunny sacks from his pack horse. Randy and I positioned ourselves on either side of the tree, ready to throw our coats over any cub Scott might roust out. I assured Randy we could grab the cubs by the back of their neck and they couldn't bite us, as I had done with baby raccoons. I'm sure he thought Scott and I were a pair of lunatics!

*Scott with a tranquilized cub.*

Scott, now in position, jabbed the first cub...and the needle came off. Only a small amount of tranquilizer penetrated. We were at a standstill again. But Scott suddenly yelled for us to look out and, high above, blocking the sun for just an instant, a tiny black cub tumbled from the tree. He landed hard, and I raced to throw my slicker over his fuzzy body. Peeking under, I felt sick when the little guy seemed totally lifeless. But suddenly he took a huge, ragged breath, and started to cry like a baby. He had only had the wind knocked out of him; he began to breathe deeply and regularly in his drug-induced sleep as we gently placed him in the gunny sack.

But there were still two lively cubs in the tree that we couldn't leave, and we had no more syringes and tranquilizer darts. Randy heaved a big sigh, told me to get ready, and hollered for Scott to push the cubs out to us any way he could. The excitement level climbed sharply. As Scott tried to wrest the bears from their perches, the wind picked up, and Randy and I ran back and forth under the tree trying to see where the cubs might land. Finally Scott shoved the most aggressive cub out—high above, we saw him hanging on the end of Scott's branch, dangling desperately as Scott tried to shake him down to us. The cub definitely did not think we were trying to help him, and as he let go of his hold, he dropped only a few feet and grabbed the next tree limb, clinging like a monkey. At last Scott pushed him free, and the little bear hit the ground in front of Randy at a run, charging for the next tree. I yelled for Randy to grab him as I raced over with the gunny sack, and Randy suddenly had six pounds of angry miniature bear slapping and growling in his grasp. We quickly stuffed him in the gunny sack. Randy suffered only one bite from those needle-sharp teeth—not bad!

The third and final cub's descent ended in an undignified landing, knocking the breath out of him. I was able to throw my jacket over him and place him in a sack before he could protest. Scott climbed down the tree one last time, and we congratulated ourselves on a seemingly impossible rescue job.

The cubs were loaded on the palomino pack horse, who was startled but amenable to his squirming load. We untied Rosie from the tree over the hill where we'd heard her muffled barking during the entire operation. As quickly as possible, we retraced our tracks back to the trailhead.

When we arrived at the trucks, I carefully untied the sack of the first tranquilized bear and peeked in. I expected him to either come at me or shrink away, but the little guy just stared at me wonderingly and cocked his head in amazement at his day's adventures. All three cubs were fine despite their ordeal.

Randy transported the cubs to FWP's Wild Animal Shelter in Helena, where they would be fed and cared for with minimal human contact. Within a month, the trio had tripled their weight and were doing well. By December, they were more than double the size they would have been had they been raised in the wild by their mother. Soon after, they went into hibernation in special denning boxes at the shelter. In mid-winter, they were moved to pre-dug dens in the Rocky Mountain backcountry, where they were born to live. ■

*Editor's Note.—According to FWP wildlife biologist Mike Madel, the cubs, all of which are radio-collared, emerged from hibernation in April and appear to be healthy. For a complete description of how orphaned black bear cubs have been successfully reintroduced to the wild through FWP's artificial denning method, see "Second Chance Bears" in the March/April 1995 issue of* Montana Outdoors.

# FWP EMPLOYEES RECEIVE ACCOLADES

Butte game warden Marty Vook, a 22-year veteran of FWP's Law Enforcement Division, received a 1995 Montana Medal of Valor in April for his part in rescuing a Wise River man from the flood-swollen waters of the Big Hole River last year. Ranch employee Eddie Reinhardt had entered the river on horseback in an effort to bring a cow-calf pair stranded on an island back to shore. After losing his horse, Reinhardt floated about a fourth of a mile downstream before he was able to cling to some willow branches. Two miles away, Vook intercepted a Beaverhead County sheriff dispatcher's report about a man stranded in the river and rushed to the scene.

With the help of Fred Henningsen, who anchored a safety rope, Vook fought through the current to reach Reinhardt and help him to shore. Vook, who attended a swift water rescue class as part of his warden training and is a certified Swiftwater Rescue Technician, says the skills he learned helped him in making the rescue. He also credits Reinhardt's courage and the team effort that made the rescue possible. Vook said Frank Stanchfield, a Wise River rancher and outfitter, boated downstream to act as a safety net in case he and Reinhardt drifted into the strong river currents. "If the dispatcher wouldn't have had the right directions, and Fred wouldn't have been there to help me, [Eddie] could've drowned," Vook said.

In addition to the Montana Medal of Valor presented to him in Helena on April 26, Vook received the prestigious Higgins and Langley Memorial Award for Outstanding Achievement in Swiftwater Rescue from the National Association for Search and Rescue, and an FWP safety award.

*Governor Marc Racicot presents FWP warden Marty Vook with a 1995 Montana Medal of Valor at an April ceremony in the Capitol Rotunda.*

*FWP warden Michael W. Barnett (left) received the Kaaro Award and the Williams Award at the graduation ceremony of the 94th session of the Basic Law Enforcement Training Course held February 11-April 19, 1996. Barnett received the Kaaro Award for attaining the highest academic score in his class and the Williams Award as he was elected class representative by his 24 fellow officers to speak at their graduation ceremonies on April 19. Pictured with Barnett is warden captain Jim Kropp.*

## AASHEIM HONORED BY MONTANA WILDLIFE FEDERATION

Ron Aasheim, administrator of FWP's Conservation Education Division, received the Montana Wildlife Federation's Conservation Communicator Award during the group's annual meeting in April. This award is presented each year to an individual who has demonstrated outstanding achievement in effectively conveying the natural resource conservation message and in creating public awareness of conservation issues in the news media.

In presenting the award, Montana Wildlife Federation president Al Rollo cited Aasheim's efforts to preserve ecological systems and help maintain Montana's hunting and fishing heritage. During his tenure as administrator, said Rollo, numerous FWP educational programs have been developed or expanded, including a video production unit that creates weekly televised outdoor reports; hunter and bowhunter education; documentary film production; *Montana Outdoors* magazine; watchable wildlife; Project WILD; and aquatic education.

Aasheim was cited for his professionalism in keeping the public informed on controversial issues like bison management and whirling disease. "Ron's career has been dedicated to elevating the importance of public education and particiption to help the people of Montana better understand, appreciate, and make informed decisions about our natural and cultural resources," said Rollo.

## William "Bill" Hoskins—A Friend of Wildlife and Sportsmen

On March 13, 1996, long-time FWP employee William "Bill" Hoskins died from a sudden illness. He was 47. A native of Tennessee, Bill grew up in the Great Smoky Mountains and graduated from Tennessee Technical University with a degree in biology.

From 1970 to 1982 Bill worked as a field assistant in and around Yellowstone National Park for the U. S. Fish and Wildlife Service, National Park Service, Interagency Grizzly Bear Study, and the U.S. Forest Service. His time in the Yellowstone area further kindled a passion for wild places and wildlife that shaped his life and career.

*Bill Hoskins — 1948-1996*

Moving to Bozeman in 1982, he studied computer science at Montana State University, seeking to link this new technology with biological research and wildlife management. While at MSU, he developed an innovative spatial analysis program for the Interagency Grizzly Bear Study.

Bill began his career with FWP in 1985 as a computer programmer-analyst for the Wildlife Division. A pillar of the department's computer-processing fraternity, Bill never ceased to amaze his co-workers with his ability to think in depth. During his tenure with FWP, he completely overhauled the process of annually building and maintaining the database of conservation license, tag, and permit buyers (about one-third of Montana's population). This database has become an integral part of the department's mission to serve the public and conserve the state's fish and wildlife resources.

Bill also revitalized the automatic data processing procedures for annually producing hunting and harvest survey reports. Because of his passion for detail, his ability to listen, and his willingness to try new ideas and techniques, FWP's annual hunting and harvest surveys are now among the most accurate and comprehensive in North America. Bill's grasp of geographic information system technology (GIS) was also an asset to FWP. Over the years he helped guide support staff, biologists, and administrators in its application.

His compassion for Montana's fish and wildlife resources and his service to hunters, department employees, and the public earned him genuine respect. His friends will remember him as a gentleman, a skilled outdoorsman, and a hunter of high ethics who practiced fair chase.

He is survived by his wife, Betsy, of Bozeman; a sister, Nancy Luck of Knoxville, Tennessee; a brother, Jim Hoskins of Charlotte, North Carolina; and numerous nieces and nephews.—*Terry Lonner, Research and Technical Services Supervisor, Wildlife Division*

## Celebrate Bannack Days on July 20 and 21

The pioneer days and ways of early Montana come alive once a year in the ghost town of Bannack during the third weekend in July. The Bannack Days celebration provides a glimpse of what life was like in the past at what is now one of Montana's most popular state parks.

Visitors walk the old boardwalks among prospectors, dance hall girls, and pioneers. A crowd gathers as a shootout takes place and the evil Henry Plummer, Bannack's infamous sheriff and leader of a band of "road agents," is hanged from the gallows. Children participate in three-legged races while a horse-drawn buggy carries excited riders along the dusty streets.

Visitors are urged to join in a variety of pioneer skill demonstrations and activities, including candle-dipping, butter-churning, blacksmithing, gold-panning, muzzleloading, spinning, weaving, soap-making, and more. Many activities take place in buildings dating back to the late 1800s. Hourly entertainment includes drama, music, horse rides, wagon rides, and old-fashioned games for children.

Learn about history in one of the first one-room school houses in Montana Territory. Hear the gospel singers in the church that circuit-riding preacher Brother Van built in 1877. Watch telegraphers operate in the first courthouse built in Montana. Attend a lecture series, tour the Bannack mill, or listen to colorful presentations by mountain men and infantrymen.

Bannack Days began almost 20 years ago as an entertaining and educational way to introduce visitors to Bannack and early Montana history. The celebration commemorates the gold strike at Grasshopper Creek on July 22, 1862, that led to the establishment of Montana's first territorial capital. Today, more than 60 buildings remain at Bannack, each with a story to tell.

Bannack State Park is located 25 miles southwest of

## Outdoor Report Broadcast Schedule

FWP's weekly video news program, called the "Outdoor Report," airs on all Montana television stations during their evening newscasts. The broadcast schedule for these two-minute productions is as follows:

| LOCATION/ STATION | DAY/ NEWSCAST TIME |
|---|---|
| **Billings:** | |
| KTVQ-TV (CBS) | Thursday/10:00 p.m. |
| KULR-TV (NBC) | Thursday/Friday 5:30 & 10:00 p.m. |
| **Great Falls:** | |
| KFBB-TV (ABC) | Thursday 5:30 p.m. |
| KRTV-TV (CBS) | Thursday 5:30 p.m. Sun/10:00 p.m. |
| **Missoula/Kalispell:** | |
| KECI-TV (NBC) | Wednesday/6:00 & 10:00 p.m. |
| KPAX-TV (CBS) | Thursday/10:00 p.m. |
| **Butte-Bozeman:** | |
| KXLF-TV (CBS) | Friday/10:00 p.m. |
| **Helena:** | |
| KTVH-TV (NBC) | Thursday/5:30 & 10:00 p.m. |

Dillon. Take Interstate 15 about two miles south of Dillon, then exit west onto State Highway 278 and travel about 20 miles to the Bannack State Park sign. Turn left and go four miles to the Bannack entrance. The cost of admission is $3.00 per vehicle. Call the park at (406) 834-3413 for further information.—*Cindy Staszak, Bannack State Park Manager; Bernie Kuntz, Region 3 Information Officer*

*Old-time music, home-cooked pioneer food, and wagon rides are a few of the attractions at Bannack State Park during the annual Bannack Days celebration in July.*

JERRY WALKER

# Montana State Parks Calendar

## July

**3—Nature Movies at Lone Pine State Park**
Movies will be shown at the visitor center from 10:00 a.m. to 2:30 p.m.

**4—Fort Owen Day at Fort Owen State Park**
Celebration to commemorate Montana's earliest settlement. Call (406) 542-5500.

**13—"Tour of the Night Skies" at Frenchtown Pond State Park**
Tour the universe with the Western Montana Astronomical Association. The program will begin at 10:30 p.m., weather permitting. Call (406) 542-5500.

**20-21—Bannack Days at Bannack State Park**
Pioneer skill demonstrations, old-time music and food, melodramas and skits, wagon rides, gold panning, dancing, mountain men, and more. Call (406) 834-3413.

**27—Kids Day at Spring Meadow Lake State Park**
A free day for children under 12 to enjoy games and learn outdoor skills. Festivities begin at 8:00 a.m. and end with a free lunch at noon. Call (406) 449-8864.

**27—Annual Beach Games at Lake Elmo State Park**
Keg toss, canoe race, football toss, paddleboat races, games, prizes, and food on the beach of Lake Elmo. Call (406) 247-2940.

**27-28—Tenth Annual Jordan/Hell Creek Walleye Tournament**
$170 per team, limit of 125 teams. Call (406) 228-3700 or (406) 232-4365.

**28—Seniors Day at Spring Meadow Lake State Park**
A day for seniors with music, dancing, and a free lunch at noon. Activities begin at 10:00 a.m. and end at 3:00 p.m. Call (406) 449-8864.

## August

**3—Art and Craft Day at the Wayfarer Unit of Flathead Lake State Park**
Call (406) 755-2706.

**3—Garden City Triathlon at Frenchtown Pond State Park**
Swim, bicycle, and run beginning and ending at the park. Call (406) 542-5500.

**4—Fourth Annual Youth Fishing Tournament at Hell Creek State Park**
Limited to children 5 to 13 years of age. A $10 entry fee includes lunch and T-shirt. Call (406) 232-4365.

**7—Nature Movies at Lone Pine State Park**
Movies will be shown at the visitor center from 10:00 a.m. to 2:30 p.m.

**10—"Out to Lunch" at Fort Owen State Park**
Bring a bag lunch and enjoy a program about the history of Montana's first white settlement.

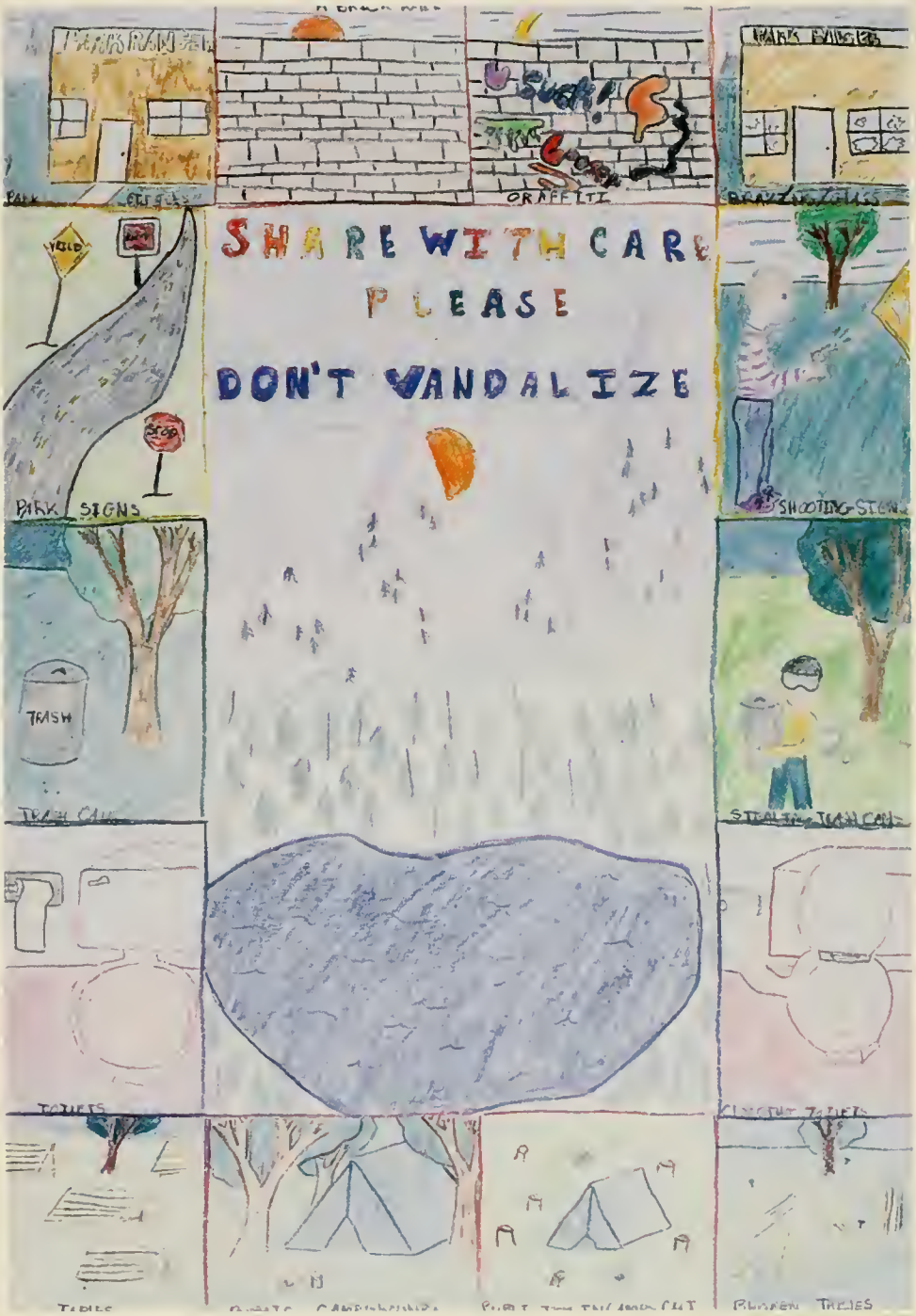
**16—Evening Bat Watch at Spring Meadow Lake State Park**
Beginning at 8:30 p.m, the Montana Natural Heritage Program will sponsor a program on bat identification, ecology, and behavior. Bring a jacket, flashlight, and binoculars. Call (406) 449-8864.

**16, 17, 18—Dinner Theater in the Park at Makoshika State Park**
An outdoor dinner followed by a play in the park. Call (406) 365-6256.

**18—Annual Women's Walleye Tournament at Hell Creek State Park**
$20 per team, limit of 50 teams. Call (406) 232-4365.

**24, 25—Montana Bass Federation Qualifier at Hell Creek State Park**

# Sha




***1st Place***
***ASHLEY BARRETT, Central Elementary School, Helena***

*Ashley's poster, which depicts the types of vandalism that take place in Montana's state parks, shows how the parks look without vandalism and how they look after vandalism has taken place. For her winning entry, Ashley received a $150 savings bond, a T-shirt with her poster printed on the front, and a week of free camping at her favorite state park. In addition her school received a video and books for its library.*

This spring, the Parks Division of Montana Fish, Wildlife & Parks (FWP) conducted its fifth annual State Parks Poster Contest to promote awareness of Montana's state parks and the recreational and educational opportunities they afford. The contest, open to all fifth graders, generated creative entries from across the state. The theme for this year's contest was the growing problem posed by vandalism at state parks and its high cost to FWP and the citizens of the state. In April a panel of five judges selected the winners.

All contest participants received poster-winner T-shirts and "Lure of the Parks" magnets. The winning entries have already been displayed in Helena and Kalispell, and will be on display at FWP regional headquarters during the following times: Missoula, 7/1 to 7/19; Great Falls, 7/22 to 8/9; Bozeman, 8/12 to 8/30; Billings, 9/2 to 9/20; and Miles City, 9/23 to 10/11.

# re With Care

**2nd Place**
**ASHLEY THATCHER, Lewis and Clark School, Great Falls**
*Ashley's creative illustration showing that Montana's state parks are "In Our Hands" is a straightforward approach to solving the increasing problem of vandalism. She received a $100 savings bond, a T-shirt with her poster printed on the back, a video for her school, and a week of free camping at her favorite state park.*

**3rd Place**
**ANNA GREEN, Central Elementary School, Helena**
*Anna's colorful poster emphasizes that Montana's state parks need to be "Handled With Care," a message that everyone can easily understand. She received a $50 savings bond, a T-shirt, a book for her school, and a free weekend of camping at her favorite state park.*

# MONTANA'S FISH HEALTH LABORATORY

*by Bruce Auchly*
*Region 4 Information Officer*
*Conservation Education Division*

When Jim Peterson sits down to eat supper the topic is almost never about his work day. "It's not good dinner talk," says Peterson, Montana Fish, Wildlife & Parks' fish health biologist. Jim handles diseased, dead, or dying fish, trying to figure out what happened. Or he might dissect a hatchery fish to make sure it's healthy. "We look at the fat content, various organs, to assess the health of the fish," he says. Jim Peterson is to the fish world what the county health department and coroner are to humans. Say, pass the mashed potatoes. Please?

With the advent of whirling disease in Montana, however, dinner talk about Peterson's work comes up more often. He even receives invitations now to luncheons and banquets to talk about fish diseases. These days, he gets to show slides over dessert.

Perhaps it's too bad that a serious fish disease should sharpen the focus on this quiet, competent corner of FWP's fisheries division. Since 1977, Peterson has been toiling away in near anonymity, trying to prevent the spread of fish diseases in the wild and helping hatcheries, public and private, grow healthy fish. "When I first started," he says, "about five percent of my time was fish health, the rest was fish culture work at the hatchery. Now fish health and disease work takes up 100 percent of my time, not because we're seeing that much more fish disease, but because we're becoming aware of the threat of disease. And we're putting more and more emphasis on disease prevention."

Before Peterson, Thurston Dotson, now FWP's Hatchery Bureau Chief and Peterson's boss, held the job from 1971 to 1977. Like Peterson, Dotson spent most of his time as a fish culturist, or hatchery worker. Working conditions were crude by today's yardstick. "The lab was my kitchen," Dotson says. "My wife can tell you that supper was delayed many times while I prepared my work on the kitchen stove."

Dotson was stationed at the Washoe Park Hatchery in Anaconda; Peterson started at the Bluewater Springs Hatchery in Bridger and had similar

BRUCE AUCHLY

*Jim Peterson, FWP's fish health biologist, troubleshoots fish disease problems and helps hatcheries grow healthy fish.*

accommodations: His lab was a converted feed room without running water.

Since 1985, Peterson has worked out of a 10-foot-square office at Giant Springs Hatchery in Great Falls; his 7-by-14-foot lab lies across the hall. That should change this year when Peterson and his assistant, Ken Staigmiller, move into a renovated house-turned-laboratory on the hatchery grounds. "We're going to retrofit an old hatchery house rather than build a new laboratory," Peterson says. The larger facility will allow the fish health duo to conduct more lab work in a safer environment, keeping possibly diseased specimens physically away from the hatchery building.

Peterson tested trout and salmon for pathogens (disease-carrying organisms), including the parasite that causes whirling disease, years before FWP announced in December of 1994 that whirling disease had been found in the Madison River. He played a key role in the discovery of whirling disease in the Madison, but that's another story. His work hasn't changed, just the intensity of the spotlight.

His work? First the routine: annual inspection of FWP's nine hatcheries and the 10 commercial hatcheries in the state. The inspections consist of checking for the presence of seven pathogens in salmonids: three bacteria, three viruses, and one parasite. To ship trout or trout eggs anywhere, hatcheries must be certified as free of the troublesome seven. "Over the years, generally only minor problems have been encountered in the state hatcheries," Peterson says. "Our hatchery fish are all healthy and our hatcheries all maintain a disease-free status."

Private hatcheries are also inspected. "To ship fish out of state you need an inspection certificate," says Tony Nowak, manager of Spring Creek Trout Hatchery near Lewistown. "It's just like cows." Spring Creek, the largest private hatchery in the state, raises two million trout eggs and one million trout a year for sale. Currently, Nowak says, the hatchery is under contract to supply the State of Massachusetts with 265,000 brook trout and 225,000 brown trout eggs. They also will sell as few as 250 trout to a rancher for his pond. Health testing and a disease-free report allows Spring Creek to ship certified disease-free fish or eggs to Boston or Broadus.

When testing, Peterson or Staigmiller will take 60 fish from a hatchery "lot." A lot is a group of fish of the same age and species, such as 6-inch rainbow trout. "Sixty fish chosen at random are all we need for statistical purposes," explains Peterson. "That amount gives us a 95 percent confi-

BRUCE AUCHLY

*Fish from all trout hatcheries in Montana are tested annually for bacteria, viruses, and parasites. Here, kidney samples are analyzed for a bacterium sometimes found in hatchery fish.*

dence level that we can find any of the pathogens we're looking for."

Back at the lab the fish are euthanized and dissected, and kidney and spleen samples are analyzed for two viruses. With spawning-size fish, ovarian fluid is checked for a third virus. A kidney smear is wiped onto a petri dish containing bacteriological media to test for two bacteria. Another kidney sample is used to check for a third bacterium. Finally, a bone specimen from the head is analyzed for *Myxobolus cerebralis*, the parasite that causes whirling disease.

If the fish are too small to dissect, say inch-long fingerlings, they are placed whole in test tubes and shipped to a testing laboratory. Peterson's lab ensures the samples are collected correctly and not contaminated.

These tests take place only on salmonids, not the rest of Montana's fish, sometimes referred to as warmwater fish or nonsalmonids. Prized by walleye and bass clubs, treasured by youngsters everywhere, to the scientist they become like books to a librarian: Fiction and nonfiction. Salmonids and nonsalmonids.

Less is known about pathogens of nonsalmonids. Specific testing procedures have not been established for the nonsalmonid world as they have for trout and salmon. Still, nonsalmonids can be tested for diseases known to infect a particular species.

Routine and nonroutine. After the routine stuff, there is everything else. The latter includes checking permits of state, commercial, and private folks who want to bring fish or fish eggs into Montana.

An import permit is required for all fish coming into Montana—salmonid or nonsalmonid. One of Peterson's jobs is to evaluate import requests. "All imported fish we handle on a case-by-case basis," he says. We have denied several import permit requests because of disease problems or lack of health testing. We have even denied requests from our own department."

Besides looking out for fish health, Peterson has to watch for other villains such as Zebra mussels and noxious aquatic plants. Zebra mussels, which resemble small clams, have caused problems in eastern states by clogging municipal water systems and boat and water intake valves.

"We can safely bring in eggs," says Dotson, the hatchery chief. "But you start bringing in live fish and you have to bring in water and everything with it. The alternative is to find another source or bring in eggs."

Finally there's the fun part of nonroutine: troubleshooting. Troubles vary from making sure hatchery fish stay healthy to diagnosing problems to helping someone whose fish are going belly up in a farm pond. All want answers. All come to Jim Peterson.

"We diagnose health problems for the nine state hatcheries, assist fisheries biologists with wild fish health problems and, when asked, provide assistance to private hatcheries," he says. For example, a common bacterial gill infection occasionally appears on the trout at Spring Creek Trout Hatchery, says owner Bobbie Kay Von Lindern. "Jim will come down here with his microscope and look at tissue samples to confirm it," she says. Once confirmed, the common disease can be treated and the fish saved.

Peterson's approach to the causes of fish health problems is almost anthropomorphic: Stress kills. That's easy enough to understand for anyone who has ever fought traffic or tried to get a loan. Although fish don't drive or cozy up to bankers, they can be stressed from low oxygen, high water temperatures, poor habitat, or too many fish in a pond, lake, or hatchery raceway.

"Quite often disease results from an unhealthy environmental condition," Peterson says. "If you can correct the environmental condition, the fish usually survive. Because the fish are more visible and crowded, diseases are more commonly seen in hatcheries, but they also occur in the wild and, in the case of whirling disease, can be a serious problem."

"There's just no end to the challenges," Peterson says. Or the after dinner stories.

# WILDLIFE NOT ON THE VERGE OF EXTINCTION

I've been enjoying *Montana Outdoors* since I swiped a subscription form from my brother in Custer, Montana, many years ago. I hope to return home to Montana in a couple of years. But every visit to Montana leaves me more troubled by the growth and change that I see there. Having lived in Seattle for the last 30 years I've been able to see some of the adverse effects of growth.

Growth isn't all bad, but the subdivision of ranches into 20-acre plots, most of which probably can't be reached for five or six months of the year minimum is stupid at best and criminal at worst. The "discovery" of Montana by various celebrities and others with more money than common sense, who want to reform the "hicks" and "hayseeds" is the most disturbing. There is so much talk these days of "diversity" and "multiculturalism," especially by some of these same celebrities, that one would think that these folks who consider themselves to be somehow superior to the natives would value the diversity they find in Montana. Sadly they mostly don't. The native who has lived and worked in Montana all his or her life is forced into a sort of second-class status by the financially "better off" newcomer.

This all brings me to the kick in the tail that finally got me to write to you, the letter from J. Riener in the May/June issue. Your answer to her ranting against hunting was to the point and well done. There is nothing to add, except to point out that most of the people who don't hunt couldn't spot an animal in the woods or on the prairie unless it were waving a sign. Consequently they seem to think that all wildlife is on the verge of extinction. I also wonder how many of the anti-hunting folks are so opposed to the killing of animals that they are vegetarians, eating no meat, fish, or fowl of any kind.

Thanks for the many years of enjoyment your fine magazine has brought, and keep up the good work.—*Larry Elliott, Shoreline, Washington*

## CONSERVATION EASEMENTS A GOOD IDEA

Thank you for another issue full of good articles. I found Pat Graham's editorial [May/June issue] especially interesting. The Habitat Montana Program is a wonderful idea. Conservation easements preserve not only a family's heritage, but the heritage of all. When you stop to think about it, the conservation easement protects that particular piece of land better than all of the federal and state-owned land in Montana that is available to the extractive industries.

Some years ago, the people in the State of California were faced with exactly the same problem. Rapidly increasing property values (and taxes) were actually forcing farmers and ranchers off their land and elderly homeowners out of their homes. Farm land was being assessed as if it was subdivision land and many homeowners saw their property taxes increase tenfold in just a few years.

The solution? A ballot measure that rolled back property taxes by several years and limited any increases to 1% yearly. Only when property is sold is it reassessed at the selling price. The new owner goes in with his eyes open; if he can afford the purchase presumably he can afford the taxes. Under this law, property inherited by children or grandchildren is not reassessed at current market value. Truly a revolutionary idea. It was known as the taxpayers' revolt. Proposition 13 passed by a very large margin.

This past year, my Montana property taxes surpassed my California taxes even though the California property has a far greater dollar value and the Montana property was bought well before the current land boom. A property tax initiative would solve a whole bunch of your (and my) problems.—*Earl McNinch, Meadow Vista, California*

## MINERAL WITHDRAWAL URGED FOR THE FRONT

I certainly enjoyed the "Getting Together" article about the Bob Marshall Wilderness Complex by John Fraley and Greg Warren in the March/April issue of *Montana Outdoors*. I've been packing into that country for 25 years, so it meant a lot to me to see the nice spread about "the Bob" and cooperation between agencies.

Along the eastern edge of the Bob Marshall, the nondesignated wilderness portions of the Rocky Mountain Front form an integral part of the complex. These public lands constitute arguably the finest stretch of wild country in the 48 contiguous states. This 100-mile strip is under scrutiny for oil and gas leasing. The Lewis and Clark National Forest is scheduled to finish its draft environmental impact statement on leasing soon.

Our group [Friends of the Rocky Mountain Front] promotes a mineral withdrawal for the Front. That seems like a long shot, and the mood of the 104th Congress seems to make a withdrawal an impossibility for the near future. But if the idea took hold in the public mind, just for this one particular area, a mineral withdrawal makes sense. It would protect all the public lands of the Front from major industrialization that mining and oil and gas might bring, while it would leap-frog the contentious wilderness debate, because all the current, traditional uses of the Front could continue just like they are. Grazing, woodcutting, and all forms of recreation would not be affected.

The great majority of interested local people who know the area would support such a withdrawal, even though there is no more consensus about the "wilderness issue" here than anywhere else in Montana. A mineral withdrawal for the Front might be a way to protect these unsurpassed public lands, a "new idea" on which most Montanans could agree.—*Gene Sentz, Choteau*

# Contributors

Present-day anglers know the Madison River as the home of wild, muscular rainbow and brown trout. But Tom Palmer (p. 2) reminds us that the Madison has been many things over the years. At the turn of the century, it was considered the best grayling stream in Montana. Later it was stocked with hatchery trout, and eventually it became the site of research that established the principles of wild trout management. Today the river is under siege by whirling disease. Through it all, says Palmer, the Madison has accepted our tinkering and our impatience: "We jump from rock to stone to boulder and back. We throw a line from the bank into a river of perpetual hope." Palmer is an information officer stationed at FWP headquarters in Helena.

*Palmer*

Pikas may look cuddly, says John Fraley, but don't be fooled; these busy little "rock rabbits" maintain rigid territories and are decidedly intolerant of each other. In this issue's "Watchable Wildlife" segment (p. 8), he describes how pika behavior is influenced by the climate of the high-altitude talus slopes they inhabit. One adaptation involves clipping and storing alpine "hay" to ensure a food supply during the long winter. Fraley, who is the department's information officer for Region 1 (Kalispell) and a long-time pika observer, thanks FWP nongame coordinator Dennis Flath and researcher Robin Kistler Moore for help with the article.

Bozeman writer Dave Carty concedes that trekking up a mountain to catch trout may not be for everyone, especially dedicated couch potatoes. But for those who like their fishing with a view, "High, Wide, and Speck-led" (p. 14) is definitely the way to go. Although he enjoys an occasional trout for supper, he admits the real reward of fishing the alpine lakes lies in the spectacular scenery. "You can tell the folks back home you made the trip for the fish you ate," says Carty, "but anyone who has ever been on a mountain lake at sunset will know better."

*Gaub*

*Hodges*

Have you ever caught a trout in an alpine lake and wondered how it got there in the first place? According to Mark Gaub and Daryl Hodges, chances are it arrived by plane. Each summer, fingerling trout grown in FWP hatcheries are flown to high-mountain lakes and released "to float like feathers to the water." Although technology has improved over the years, the method is basically the same as that pioneered with buckets and biplanes in the 1930s. To learn more about this unique stocking program, turn to "Trout that Fly" on page 19. Gaub is a fish culturist at FWP's Yellowstone River Trout Hatchery in Big Timber, and Hodges is the hatchery manager.

In this issue's "Lands Legacy" installment, Dale Carlson describes the origins of Fort Owen, Montana's earliest white settlement and now the site of Fort Owen State Park. The settlement dates to 1841, when Jesuit fathers established St. Mary's Mission. They later sold the property to a colorful character named John Owen—adventurer, trader, and Indian agent. Attractions at the park, says Carlson, include restored structures from the original fort, a log house containing remnants from the homesteading era, and a picnic area. Carlson is a park operations specialist stationed at FWP's Region 2 (Missoula) headquarters.

Since the day he received a call about three orphaned black bear cubs, Emigrant-based game warden Randy Wuertz had searched for them in vain. On the fifth day he called Scott Sallee and Sandy Seaton and asked if they would bring their lion hounds to try tracking the cubs. "This was our first bear call," says Seaton, "and we were doubtful of success; it had been five days since the cubs left their mother. But we were more than willing to try." As it turned out, they did better than try. Their redbone hound, Rosie, led them to the cubs, which promptly scampered to the top of a tall tree. Then the fun began in earnest. To learn the happy ending to a story called "Montana Rosie and the Three Bears," turn to page 27.

*Seaton*

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